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ABSTRACT

This curriculum guide is designed to aid Kansas instructors in conducting a course for teaching nursing home medication aides. Covered first are various introductory topics such as the role and responsibilities of medication aides, pharmacodynamics, forms in which medication is now available, common medical abbreviations, mathematics and weights and measures, drug standards and names, and resources for drug information. The second part of the guide is devoted to specific types of drugs. Included among these are drugs that specifically affect the cardiovascular, urinary, respiratory, digestive, central nervous, musculoskeletal, and endocrine systems; antibiotics and other anti-infective agents; and drugs affecting the eyes, ears, and skin. Topics addressed in the third part of the guide are: preparing to administer medications, administering medications, and recording medication administrations. Outlined next are guidelines for conducting a practicum for student nursing home medication aides. A brief annotated bibliography concludes the guide. Appended to the guide are outlines for executing various drug administration procedures, a list of common medical abbreviations, a chart listing units of measurement and their abbreviations, and facts about diabetic acidosis and hypoglycemia. (MN)

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KANSAS
NURSING HOME MEDICATION AIDE CURRICULUM

Revised by

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and
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IN COOPERATION WITH

KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT

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KANSAS ADULT CARE HOME
MEDICATION AIDE CURRICULUM

Prepared jointly by the:

Kansas Department of Education
and
Kansas Department of Health and Environment

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Effective March 1, 1982, Joseph F. Harkins, Secretary of Health and Environment. approves the Medication Aide Curriculum as revised.

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PREFACE

A great deal of effort has been made to ensure that this curriculum is accurate and current at the time of its writing, however, knowledge about drugs is constantly growing, and drug uses may change. Therefore, it is the responsibility of the instructor using this curriculum to modify drug related information as necessary to maintain its accuracy.

This curriculum is intended to be a guide for the instructor. The content may be supplemented if the instructor feels additional material will help the student provide better care for the nursing home resident.

Sound educational practice allows for testing of the student over small units of information, so that the student and instructor have feedback about the student's progress through the course. This practice is more helpful than testing only at the end of the course.

This revised curriculum was originally drafted by committee action. We are indebted to the individuals who are listed below.

Chairman

Lowell M. Wiese, M.D.

Members

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Learner Objectives	Content	Teaching Aids and Approaches
	Unit I. Role and Responsibilities of the Medication Aide	Suggested classroom time for Part I: 6 hours
Identify the responsibility of the medication aide to self and to residents	A. Know oneself and one's attitude toward drugs. 1. Medications are foreign substances with great potential for changing body function. Should not be given without a sense of responsibility for their consequences. 2. Only drugs ordered by doctor for specific resident and condition should be administered. Drugs are never given to a patient without doctor's order. Aide should not administer drugs to self.	Use class discussion to find out what aide's perception of the role is. Emphasize negative aspects of self medication, dangers of interchanging medication. Emphasize importance of following medication orders and instructions from doctor and supervisors.
	B. Know residents as individuals and be aware of their treatment and medication needs. 1. Be able to identify each person in the institution and recognize or ascertain their identity in any setting. 2. Know normal actions and activity for each person and be able to recognize deviations from this. Change from the norm may be one's first clue to adverse drug reaction.	Emphasize observing change from normal activity. Since it is impossible to memorize <u>all</u> side effects for <u>every</u> drug, noticing changes from norm may be clue to drug reactions.
Identify legal implications of medication aide's role	C. Administer medications safely and effectively as ordered, under the supervision of an L.P.N. or R.N.	Stress importance of acting under supervision, not independently
	D. Know legal implications of drug administration 1. Aide is responsible for own actions. 2. Aide is limited to performing only what is taught in this course. One can be found liable for damages if performing tasks for which one has not been trained, or performing incorrectly tasks one has been trained to do. 3. Administering medications by injection is not within the legal role of the medication aide.	Emphasize personal responsibility to perform within legal role. Get copy of current Nursing Home regulations from nursing home administrator or Kansas Bureau of Nursing Homes Dept. of Health and Environment Forbes Field Topeka, KS 66620

Learner Objectives	Content	Teaching Aids and Approaches
	Unit II Pharmacodynamics	
	A. Medications are ordered for a specific resident, to modify or change a specific condition.	
Identify meanings for terms which describe unwanted medication reactions	B. Medications may cause unwanted reactions. 1. Side effect - a reaction other than the main effect desired 2. Toxic effect - the effect of an excessive amount of medication (greater than the body can tolerate) 3. Additive or synergistic effect - increased effectiveness usually the result of combining drugs with similar actions. 4. Allergic reaction - various responses due to the body's immunity mechanism reacting to the presence of a drug (a foreign substance).	Use examples of commonly known medications to illustrate these definitions. Give examples of allergic reactions to medication. Class members have usually experienced some allergic reactions personally.
Name factors that influence medication action and identify their effects	C. Factors that influence medication action 1. Dosage - the greater the amount of drug, the greater the expected effect. 2. Presence of food in stomach. a. Food delays emptying of stomach - may retard absorption of medication. (Aids antacid effect) b. The presence of food increases the acidity of the stomach. This may prevent or speed up absorption. c. Most medication is absorbed best when taken on an empty stomach. There are a few medications which are absorbed better when given with foods [e.g., hydralazine (Apresoline)]. Should check drug references. 3. Interaction with other medications - may enhance or impede drug action. Many interactions are possible. Be alert for changes in the resident's response to his present medications when new medications are ordered.	Use tables of drug interactions to illustrate the magnitude of this problem. When you teach about specific medications, show how to use references to find this information

7

Learner Objectives	Content	Teaching Aids and Approaches
	4. Multiple diseases - the body's ability to respond to the medication may be altered by underlying pathology and more unwanted reactions are expected. Diseases involving the liver (where many drugs are metabolized or detoxified) or the kidneys (which excrete most drugs) are likely to increase side or toxic effets. The body's homeostatic mechanism is compromised.	
	5. Aging - growing old in itself does not change drug response, but change in effective function of body systems does. This cannot be predicted by age in years. The elderly may be more sensitive to some drugs and therefore have a greater potential for reacting adversely. Be alert for unusual over or under responses to drugs.	Check references for more information if you desire: AJN, August, 1978, p. 1347+ AJN, August, 1980, p. 1474+

Learner Objectives	Content	Teaching Aids and Approaches
	Unit III. Forms in Which Medication is Available	
Identify definitions for forms in which medication is available and implications for effective use	A. Solid oral dosage forms. 1. Tablets - Powdered or granulated drugs compressed into various small shapes. "Pill" is the term formerly used for this type of medication. Tablets may have a scored or indented line so that they can be easily broken. 2. Capsule - Hard or soft gelatin covering for powdered or liquid medication. Contents may have an objectionable taste. 3. Enteric-coated tablets or capsules - Have a special coating which is insoluble in stomach acid, but which dissolves in the alkaline secretions of the small intestine. Used for drugs which may cause nausea or stomach irritation. Obviously, these drugs should not be crushed or removed from the capsule. They may dissolve in the stomach if given at the same time as an antacid. 4. Prolonged-action tablets or capsules - Special coatings allow dissolving of medication at a slow rate to produce a sustained drug action and reduce the number of doses per day that the resident needs. These tablets or capsules also should not be crushed or opened. They may also be called sustained release forms, Spansules, Timespans or other trade names. 5. Sublingual tablets - Placed under tongue to dissolve and to be absorbed into the circulation. Dissolve readily. B. Liquid oral dosage forms. 1. Syrup - Solution of medication, sugar and water to which flavoring is usually added to enhance palatability.	Show examples of these forms, if possible. Contact a pharmacist who serves a local nursing home for assistance.

Learner Objectives	Content	Teaching Aids and Approaches
	2. Elixir - A solution of medication with water and alcohol which is slightly sweetened and flavored.	
	C. Suppository - Solid dosage form for insertion into rectum or vagina. It is a mixture of medication and a substance which will melt at body temperature.	
	D. Aerosol - Solutions and powdered solids which are broken up into fine particles and inhaled into the respiratory tract. A nebulizer is used to break up and suspend the particles of medication in air or gas (liquid vapor).	
	E. Forms applied to the skin and mucous membrane 1. Ointment - semi-solid preparation of medication in an oily base. 2. Lotion - preparation of medication in liquid form, usually water base.	

Learner Objectives	Content	Teaching Aids and Approaches
	Unit IV. Common Medical Abbreviations	
Use common medical abbreviations abbreviations	See Appendix X for a listing of common medical abbreviations	Students may be asked to learn abbreviations in short lists over several class sessions. Instructor suggestions to facilitate learning include the use of flash cards and a "spell-down."

Learner Objectives	Content	Teaching Aids and Approaches
	Unit V. Mathematics, Weights and Measures	
Read and write lower case Roman numerals from 1/2 through 30	A. In the apothecaries' system dosage quantities are written in lower case Roman numerals and after the symbol for the measurement unit, i.e., gr.xx.	Review math over several sessions of the course. You may take Roman numerals further, if you wish.
Read decimals Add fractions and decimals	B. Explain and give examples of how to read decimals and add fractions and decimals. The student should be able to determine, for example, that two gr. 1/4 tablets equal gr. 1/2 or that two 0.5 g tablets equal 1.0 g.	Use practice problems. Many introductory medication administration texts contain practice problems which have suggestions for how to prepare practice materials.
Write the abbreviations for units of measurement in the metric, apothecaries and household systems when given the name, and vice versa	C. See Appendix XI - Units of Measure	This may be interspersed with other units and spread out over several class sessions.
Organize in order of relative size units of measurement within metric, apothecaries' and household systems	Example: Grams larger than milligrams Ounce larger than dram	May use medicine cup, graduate, dropper to help demonstrate relative size.
	NOTE: Unlicensed personnel do not convert dosage in preparing drugs for administration. This function is performed only by licensed personnel or a pharmacist. For this reason, equivalents among the three systems of measurement have not been included in this curriculum.	SUGGESTION: If dosage has to be calculated, licensed personnel could write out specific instructions on medication card.

Objectives	Content	Teaching Aids and Approaches
	Unit VI. Drug Standards and Names	
Identify the meaning of the initials U.S.P. following a drug name	A. Drug Standards - Federal law requires that drugs follow standards to ensure uniformity and purity. These standards are published in the United States Pharmacopeia. A drug which follows official standards may use U.S.P. after its name.	Show examples of drug labelling which uses U.S.P.
Differentiate between generic and brand names for drugs	B. Drug names 1. Generic name - The official name for a drug, begins with a lower case letter 2. Brand name or trademark name - Drug name which is owned by the manufacturer. The manufacturer's name is always capitalized.	Give examples to illustrate

Learner Objectives	Content	Teaching Aids and Approaches
	Unit VII. Resources for Drug Information	
Identify names of resources for drug information Demonstrate the ability to use these resources	Medications should not be given until one knows both expected and adverse effects. There are many sources of information about medication but few may be available in the work setting for the medication aide.	Prepare practice problems to demonstrate resource use. You may want to include this skill in testing.
	A. Package brochure - prepared by manufacturer to accompany every packaged unit. Available only with pre-packaged drugs.	You may also want to have students prepare drug cards for commonly used medications. Some instructors assign drug cards for selected medications from each unit.
	B. Physician's Desk Reference (PDR) 1. Contains information from manufacturers. Most descriptions are the same as the package brochure. 2. Convenient to use and up-to-date, but contains much technical information. 3. Does not give information on all drugs.	
	C. Pharmacist - the consulting pharmacist or the pharmacist who filled the resident's prescription can be a valuable source of information. The supervising nurse may also be consulted.	Give example of protocol on how to contact pharmacist for information. Have aides survey resources available in work setting and evaluate their adequacy.
	D. Other resources with excellent, easy-to-read information are available, but may not be found in the work setting. 1. The American Hospital Formulary Service - a two-volume book with up-dating supplements More comprehensive than PDR. 2. Facts and Comparisons - contains concise explanations. Has up-dating supplements. More comprehensive than PDR. 3. Nursing-oriented drug reference texts.	These resource names are some of many which are available should employers wish to improve their reference material. You will be able to suggest others for student use.

Part II Medications

Learner Objectives	Content	Teaching Aids and Approaches
	Unit I. Drugs Affecting the Cardiovascular System	Suggested classroom time: 5 hours
Identify the basic structures and functions of the cardiovascular system	A. Cardiovascular structure and function 1. Heart - a muscular organ which rhythmically pumps blood. The heartbeat should be regular in rate and force. 2. Blood vessels a. Arteries - muscular tubes which carry blood containing oxygen and other nutrients to body tissues. Arteries can constrict and dilate to change blood pressure. b. Veins - vessels which return blood containing carbon dioxide and other wastes from tisues to heart. (The heart then pumps blood to lungs to be re-oxygenated. The kidneys filter wastes as the blood is recycled.) 3. Blood - some blood components are: a. Plasma - liquid component b. Red blood cells (RBC) - carry the oxygen c. White blood cells (WBC) or leukocytes - help protect the body from infection d. Clotting factors, such as platelets, prothrombin, and others are also found in blood.	Use models or drawings to illustrate. You may be able to borrow models from local high school biology department or a nursing education program. Some excellent booklets explaining cardiovascular disorders are available from: American Heart Association 1. Kansas Affiliate, Inc. 5229 West 7th Street Topeka, KS 66606 or 2. Kaw Valley Tri-County Heart Division 5820 Woodson Mission, KS 66202 or 3. Sedgwick County Heart Division 2100 East Douglas Wichita, KS 67214
Identify the action and major side effects of digitalis drugs Name commonly used digitalis drugs	B. Cardiac drugs used for congestive heart failure (Digitalis drugs) 1. How the body malfunctions: Heart failure results from the heart not working effectively as a pump. There are many conditions which can cause congestive heart failure (CHF). When the heart cannot pump effectively, fluid "backs up" in the	May review changes associated with aging. Students may be able to give examples of residents with each of these cardiac disorders. Attaching this new information about medication to a person they know may help them better

Learner Objectives	Content	Teaching Aids and Approaches
	vessels and tissues causing edema in the tissues, abdomen or lungs. In addition to digitalis drugs, diuretics are commonly given to treat and prevent CHF.	understand and remember these drugs.
Identify measures which help ensure safe administration of digitalis drugs	2. Action: Slow and strengthen the heart's contraction so that it pumps more blood with each beat. 3. Side effects are often signs of toxicity (excessive effect) a. Excessive slowing of heart b. Irregular heart beat c. Gastrointestinal symptoms: anorexia, nausea, vomiting d. Confusion, weakness e. Visual blurring 4. Examples: a. digitoxin (Crystodigin) b. digoxin (Lanoxin)	
	5. Implications for care: a. Check label closely to assure giving correct drug. These drugs are not interchangable in spite of similarity of names.	Show similarities in appearance and labelling to reinforce need to read label closely.
	b. Check pulse before giving. Should be 60/minute or more.	May review how to check apical pulse.
	c. Notify supervisor before giving medicine if pulse is slow or other signs of toxicity are present.	
Identify the action and major side effects of anti-anginal drugs	C. Cardiac drugs used for angina (Nitrates) 1. How the body malfunctions: Angina results from lack of oxygenated blood to areas of the heart muscle. The pattern of pain remains fairly constant for one individual but varies between individuals. Anginal attacks are usually set off by physical activity or emotional stress.	Use student's previous work experiences to enhance this description.
	2. Action: Dilate coronary blood vessels.	

Learner Objectives	Content	Teaching Aids and Approaches
	3. Side effects are often due to systemic vasodilation a. Throbbing headache b. Postural hypotension (dizziness, weakness)	
Name commonly used anti-anginal drugs	4. Examples: a. nitroglycerin sublingual tablets - for rapid action b. nitroglycerin ointment (Nitro-Bid) - for prevention of angina, often used at night. c. isosorbide dinitrate (Isordil, Sorbitrate) - oral medication possibly effective for prevention of angina d. papaverine (Pavabid) - not a nitrate possibly effective in relieving angina.	
Identify measures which promote drug action and ensure resident safety	5. Implications for care a. Sublingual tablets are to be placed under the tongue to be dissolved and absorbed into the mouth's blood vessels for quick action. b. Advise the resident to lie down or sit down after taking sublingual tablets, so that he will not feel faint or fall. c. Keep tablets in manufacturer's container (glass, light-proof) to prevent deterioration. d. Apply ointment to clean body surface which is free of heavy hair growth.	Demonstrate how to measure ointment dosage and apply. Consult product literature.
Identify the action, side effects and names of antiarrhythmic drugs	D. Drugs used for arrhythmias 1. How the heart malfunctions: The heart beats irregularly. 2. Action: Promote a normal rhythm of the heart beat. Drugs have this effect by depressing the ability of the cardiac muscle to respond to irregular or weak signals to beat.	Describe malfunction in as much detail as you feel appropriate.

27

23

Learner Objectives	Content	Teaching Aids and Approaches
	3. Side or toxic effects a. Slow pulse - even normal impulses don't cause the heart to beat. b. Postural hypotension, dizziness - slowed heart action may lower blood pressure. c. Quinidine may cause G.I. upset, ringing in the ears, and other symptoms. 4. Examples: quinidine propranolol (Inderal)	
Identify implications for care when antiarrhythmic drugs are given	5. Implications for care a. Report postural hypotension, slowed pulse, low blood pressure to supervisor. b. If quinidine causes G.I. upset, give with food.	Emergency cardiac drugs have not been included in this curriculum because they are given by injection by licensed personnel.
Identify the action and major side effects of antihypertensive drugs	E. Drugs used to treat hypertension (antihypertensives) 1. How the body malfunctions: With hypertension the blood pressure remains elevated. If not reduced, blood vessels in the brain, kidney and heart are likely to be damaged. 2. Action: Lower blood pressure. Many do this by dilating blood vessels. Will not improve hypertension caused by arteriosclerosis. Often used in conjunction with diuretics. 3. Side effects: Postural hypotension Drowsiness	
Name commonly used antihypertensive drugs	4. Examples: a. methyldopa (Aldomet) b. propranolol (Inderal) - also used to treat arrhythmias, angina, and migraine headache c. reserpine, hydralazine (Apresoline) and hydrochlorothiazide (Esidrix) - One brand name for this combination of two antihypertensives and a diuretic is Ser-Ap-Es. When hypertension is not relieved by the use of one drug, a combination of two or more drugs may be ordered.	

Learner Objectives	Content	Teaching Aids and Approaches
Identify measures to monitor drug effect and to ensure resident safety	5. Implications for care: a. Check blood pressure (B.P.) routinely b. Since the resident may faint easily, he should rise slowly from a lying to a sitting or standing position. Hot baths or showers may also make him more prone to faint. Standing still may also precipitate fainting. Encourage movement. c. If the medication is omitted or suddenly discontinued the resident's B.P. may rise higher.	May review proper techniques to obtain accurate B.P.
Identify the action and main side effect of anticoagulant medication Name a commonly used anticoagulant Identify measures which help detect or prevent complications	F. Anticoagulants 1. How the body malfunctions: Abnormal clotting may cause damage to the brain, heart or lungs (stroke, myocardial infarction, pulmonary embolism) 2. Action: Inhibit clotting of blood. 3. Side effect: Bleeding-the result of excessive action. Vitamin K (Mephyton) is antidote. 4. Example: warfarin (Coumadin) 5. Implications for care: a. Observe for signs of bleeding: bleeding gums, bruising, blood in urine or stools b. Protect from injury, e.g., shave with an electric razor	

Learner Objectives	Content	Teaching Aids and Approaches
	Unit II. Drugs Affecting the Urinary System	Suggested classroom time: 3 hours
Identify basic structures and functions of the urinary system	A. Urinary structure and function 1. The main functions of the urinary system are to remove waste products from the body and regulate the amount of water in the body. 2. Structures a. Kidneys - contain the filtering units b. Ureters - muscular tubes which drain urine from kidney to bladder c. Bladder - muscular structure which stores urine d. Urethra - muscular tube through which urine passes out of the body e. Prostate - male reproductive gland located around the urethra at the base of the bladder. Enlargement may produce urinary obstruction 3. Normal urine should be clear, pale yellow	Use models and drawings to illustrate. Borrow from local high school biology department or a nursing education program if you have none. May review changes associated with aging.
Identify the action and major side effects of diuretics	B. Diuretic drugs 1. Action: to increase urine production Discuss situations in which diuretics are used such as edema and hypertension 2. Major side effects: Some diuretics cause excessive potassium loss and should be given with potassium replacement or conscientous dietary replacement	
Name commonly used diuretics	3. Examples: a. furosemide (Lasix) b. hydrochlorothiazide (Hydrodiuril, Esidrix) c. triamterene and hydrochlorothiazide (Dyazide) - a combination of two diuretics	
Identify nursing actions to monitor the diuretic's actions, to observe for complications and to promote comfort for the resident	4. Implications for care: a. Give early in day b. Give with plenty of fluid unless physician restricts c. Monitor effectiveness by taking routine body weight	

Learner Objectives	Content	Teaching Aids and Approaches
	d. A daily weight change of greater than + 2 lb. is significant e. Potassium depletion may result in confusion, gas, muscle weakness, muscle cramping and/or an irregular heart beat f. Encourage the resident to eat a variety of foods	May review foods which are sources of potassium, if you feel it would be helpful.
Identify the reason potassium replacement drugs are used Name commonly used K replacement drugs	C. Potassium replacement drugs 1. Action - Replace potassium (K) lost when certain diuretics are used 2. Major side effect: Stomach irritation 3. Examples: a. KCl - abbreviation for potassium chloride b. Slow-K - wax matrix form for delayed release c. K-Lyte	
Identify nursing actions to prevent medication reactions	4. Implications for care: a. Give with food to help prevent gastric irritation b. Don't give wax matrix form with hot food or liquid to prevent melting	
Identify drugs which increase and decrease bladder tone	D. Drugs that affect bladder tone 1. oxybutynin (Ditropan) - antispasmodic drug that reduces bladder contractions and delays the initial urge to void in persons with neurogenic bladder 2. bethanechol (Urecholine) - Increases bladder tone, promotes voiding. Review nursing measures which help residents regain bladder control	Association of drugs with persons who receive them will help students remember the drugs.
Identify drugs which are used to treat urinary tract infections and nursing measures to promote effectiveness	E. Urinary anti-infectives 1. Action and use: To prevent or treat urinary tract infections 2. Side effects: Minimal	May review ways to prevent urinary tract infections. Particularly review aseptic technique in catheter care.

Learner Objectives	Content	Teaching Aids and Approaches
	3. Examples of drugs and some implications for care: a. sulfisoxizole (Gantrisin) - from sulfonamide family b. nitrofurantion (Macrodantin) - frequently causes G.I. upset. Give with food. May color the urine rust-brown. Other drugs used to treat urinary infections may also color the urine. c. trimethoprim and sulfamethoxizole (Septra, Bactrim) - used for resistant urinary infections d. methenamine (Hiprex) - used for persons who are susceptible to chronic, recurrent infections. Physician may order Vitamin C or other medication to acidify the urine when this drug is given. 4. Implications for care: Encourage fluids and regular emptying of bladder.	

Learner Objectives	Content	Teaching Aids and Approaches
	Unit III. Drugs Affecting the Respiratory System	Suggested classroom time: 4 hours
Identify the basic structures and functions of the respiratory system	A. Structure and function of the respiratory system 1. Parts of the respiratory system a. Nose - warms, moistens and filters inhaled air b. Pharynx (throat) - passageway for air c. Larynx - "voice box" d. Trachea - "wind pipe" - reinforced tube leading to bronchi e. Bronchus (bronchi) - tube(s) leading to lungs f. Bronchioles - smaller divisions of tubes leading deeper within lung tissue g. Alveolus - small sac at end of bronchiole. O_2 and CO_2 are exchanged from the blood circulation through the walls of the alveoli. h. Lung - organ which contains the bronchioles and alveoli	Use model if at all possible. Drawings are also helpful. May review changes associated with aging.
	2. Breathing mechanism a. The intercostal muscles and the diaphram change the size of the chest cavity to make inspiration and expiration possible. b. The control center for the respiratory system is in the brain. c. Mucus is continually produced within the lungs and moved upward to the pharynx where it can be coughed up or swallowed. The mucus traps dust and other foreign particles within the lungs.	May review common chronic and acute disorders such as chronic obstructive lung disease. Some pamphlets describing respiratory disorders are available from: American Lung Association of Kansas 4300 Drury Lane, P.O. Box 4426 Topeka, KS 66604
Identify reasons for O_2 administration, toxic effects, and nursing actions to prevent toxicity and maintain safety	B. Oxygen (O_2) 1. Use to treat hypoxia. May be given continuously for a person whose lung tissue has been severely damaged by disease. May be given on an emergency basis to a resident who suddenly becomes short of breath. Consult licensed person in charge before starting emergency administration.	

Learner Objectives	Content	Teaching Aids and Approaches
	2. Toxic effects: a. Result from O_2 being supplied in greater amounts than the body needs. b. May include drowsiness, confusion, and respiratory depression (dangerously slowed breathing) 3. Implications for care: a. Maintain O_2 flow rate at low levels ordered by physician to prevent respiratory depression. b. Oxygen supports combustion. Take special precautions to limit the potential sources of fire. c. See Oxygen Administration, Appendix I.	See Part III, Administration of Medications, for suggestions if you choose to teach O_2 administration at this time.
Identify the action, use and side effects of bronchiodilator drugs	C. Bronchiodilator drugs 1. Action: Dilate or increase the opening size of the bronchioles and alveolar ducts. Also decrease swelling or congestion in the respiratory tract. 2. Use: To treat obstructive respiratory disorders such as asthma, emphysema or chronic bronchitis. 3. Side effects: Tachycardia Nervousness and insomnia Some may inhibit voiding	
Name drugs with a bronchiodilator action	4. Examples: Bronchiodilators may be given by aerosol, oral tablets, elixirs, syrups and suppositories. a. theophylline, aminophylline (use trade names common in your area) are usually administered orally. May also be given as rectal suppository. May cause gastrointestinal distress. b. isoetharine (Bronkosol) - given by inhalation c. terbutaline (Brethine) - given orally or by inhalation	

Learner Objectives	Content	Teaching Aids and Approaches
Identify ways to minimize the side effects of bronchiodilator drugs	5. Implications for care a. See Inhaler Therapy and Nebulizer Therapy, Appendices II and III. b. Residents may become very dependent on the use of their inhalers. Excessive use results in loss of effectiveness or even decrease in opening size of bronchioles. Do not exceed recommended dosage. c. Check pulse to monitor effect on heart. d. If oral medication causes gastric distress, give with food. e. The combination of oral and inhaled bronchiodilators may result in increased side effects.	
Identify actions, use, side effects, and names of antihistamines	D. Antihistamine drugs 1. Action: relieve runny nose, sneezing, itchy, watery eyes, caused by allergy. May also relieve urticaria. 2. Use: Relieve symptoms caused by allergy. 3. Side effects: a. Drowsiness or dizziness b. Dry mouth 4. Examples: Use names common in your area a. promethazine (Phenergan) - also used for nausea b. diphenhydramine (Benadryl) - also used as a sedative c. Antihistamines may also be combined with decongestants and other drugs. This combination may be used to relieve symptoms of colds as well as allergies.	
Identify implications for care when antihistamines are used.	5. Implications for care a. Try to limit residents contact with allergen b. Encourage fluids. c. May cause increased drowsiness when combined with other depressant drugs.	May review appropriate care for residents with upper respiratory disorders.

Learner Objectives	Content	Teaching Aids and Approaches
Identify the expected actions, side effects, and implications for care when respiratory combination products are used	E. Respiratory combination products--Many "cough syrups" are a combination of several drugs which act in different ways. 1. Actions may include any or all of: a. Antitussive - relieves cough b. Expectorant - supposed to reduce thickness of mucus, or increase production of mucus c. Decongestant - supposed to reduce swelling 2. Uses: Depending on drugs combined - upper respiratory infections or nonproductive and productive cough. 3. Side effects: a. Antitussive - narcotic drug may cause sedation nonnarcotic drug causes no sedation b. Expectorant - none c. Decongestant - may cause nervousness and insomnia 4. Examples: Many over-the-counter products are available. Add those which are common in your area. a. Robitussin DM b. Triaminic expectorant c. Actifed C - prescription drug. Contains antihistamine and narcotic antitussive 5. Implications for care a. Syrup medications may have a demulscent or soothing effect on the throat for a short time after administration. Do not follow with water for 30 minutes. b. Expectorant action is greatly improved if the resident is well hydrated. Encourage fluids to 2000-3000 ml. per day. c. Humidified air may help promote expectoration. d. Increased activity may promote movement of mucus and productive coughing.	

Learner Objectives	Content	Teaching Aids and Approaches
	Unit IV. Drugs Affecting the Digestive System, Vitamins and Minerals	Suggested classroom time: 4 hours
List structure and function of parts of digestive system	A. Structure and function of digestive system organs 1. Mouth: chews food and mixes it with saliva 2. Esophagus: connects mouth and stomach 3. Stomach: holds and mixes food with digestive juices 4. Small intestine: over 20 feet long; food absorbed into blood stream here. 5. Large intestine: 5 feet long; absorbs water from feces. 6. Rectum: far end portion of large intestine 7. Anus: opening at far end of digestive tract for expelling feces 8. Liver: secretes digestive substances 9. Pancreas: secretes other digestive substances into the digestive tract and insulin into the blood stream	Use charts and models.
Name drugs, actions, side effects, and implications for care for medications which reduce stomach acidity	B. Drugs affecting digestive system 1. Antacids a. Action: neutralize stomach acid, treat hyperacidity b. Uses: peptic ulcer c. Examples of drugs, grouped as to ingredient and side effects 1) sodium bicarbonate (baking soda) - persons on sodium restriction should not use, e.g., persons with heart and kidney problems. Not safe for long term use. 2) calcium salts - seldom used, usually constipating 3) aluminum salts (Amphojel, Rolaids) usually constipating 4) magnesium salts (Milk of Magnesia) usually causes diarrhea	Review changes of digestive system associated with aging.

47

000 48

Learner Objectives	Content	Teaching Aids and Approaches
	5) combination of magnesium and aluminum (Maalox, Mylanta, Gelusil, Kolantyl, Aludrox, Riopan) used to balance out the constipating and laxative effect of each 6) simethecone (Mylicon) antiflatulant agent often added to antacids or taken as preventive d. Implications for care: 1) Antacids may interfere with all drug absorption so should not be given simultaneously with other medications. 2) Antacid effect is prolonged when medication is taken with food. 2. Drugs that inhibit gastric acid secretion a. cimetidine (Tagamet) - used to treat stomach and duodenal ulcers, prevents the release of gastric acid. Side effects minor, high doses may cause confusion.	
List action, side effect, and examples of drugs which treat nausea and vomiting	3. Antiemetics a. Action: suppress nausea and vomiting by acting on brain control center b. Side effect: drowsiness c. Examples 1) dimenhydrinate (Dramamine) 2) trimethobenzamine (Tigan) 3) meclizine (Antivert) 4) phenothiazines (Compazine, Thorazine, Phenergan)	Review general care to prevent and control nausea, vomiting and diarrhea.
Name examples, and side effects of antidiarrheal medications according to their action	4. Antidiarrheals - drugs to relieve diarrhea a. Adsorbants 1) Action: Soak up excess fluids and bacteria 2) Side effects: minimal 3) Examples: kaolin bismuth (Pepto-Bismol) pectin (from apples) kaolin and pectin (Kaopectate)	

Learner Objectives	Content	Teaching Aids and Approaches
	b. Drugs which slow intestinal motility, opiates 1) Action: reduce peristalsis by action on central nervous system 2) Side effects: drowsiness, may be addicting 3) Example: opiates (Paregoric)	
	c. Drugs which slow intestinal motility, antispasmodics 1) Action: acts on autonomic nervous system to reduce peristalsis 2) Uses: spastic colon, diarrhea 3) Side effects: varied and many because of effect on entire autonomic nervous system: blurred vision, dry mouth,heart palpitations, urine retention 4) Examples: a) atropine sulfate and diphenoxylate HCI (Lomotil) b) atropine, scopolamine, phenobarbital (Donnatal) c) kaolin, pectin, atropine, belladonna (Donnagel) d) loperamide (Imodium)	
State non-drug means of controlling diarrhea	d. Implications for care in diarrhea in addition to medications: remove cause of diarrhea, replace fluids, rest intestines (limit solids eaten)	
List examples, side effects, action, speed of action for drugs which promote defecation.	5. Cathartics (laxatives) - drugs which promote defecation a. Laxatives which stimulate intestinal peristalsis: Usually act in 6-8 hours in oral form. Suppositories act faster. 1) Examples: castor oil (Neoloid) acts in several hours senna (Senokot) bisacodyl (Dulcolax) phenolphthalein (Ex-Lax)	May discuss hazards of chronic use of laxitives.

51

52

Learner Objectives	Content	Teaching Aids and Approaches
	2) Side effect: abdominal cramping b. Laxatives which pull fluid into large intestine (saline cathartics). 1) Example: magnesium hydroxide (Milk of Magnesia); acts within 8 hours. 2) Implications for care: Must be accompanied by good fluid intake. c. Laxatives which increase bulk: Act within 12 hours to 3 days; most natural, least irritating action 1) Examples: psyllium (Metamucil) psyllium (Konsyl) contains no sugar 2) Side effects: minimal 3) Implications for care: must be administered with adequate water and continued good fluid intake d. Laxatives which lubricates feces 1) Example: mineral oil - acts within 2-6 hours 2) Side effects: interferes with absorbing nutrients. Shouldn't be taken at mealtime or long term. e. Laxatives which moisten fecal matter - (fecal softeners): Safe and non irritating; act in 1 to 3 days. 1) Examples: dioctyl calcium sulfosuccinate (Surfak) dioctyl sodium sulfosuccinate (Colace)	Review bowel training.
State non-drug methods to help prevent and correct constipation	f. Implication for care in preventing constipation: Diet should include bulk and adequate fluid. Exercise helps prevent constipation.	Describe in detail foods which add bulk to diet; methods to help maintain good fluid intake.
State what functions vitamins (in general) have in the body	6. Vitamins a. Action: vitamins are substances required for the body to carry out metabolic reactions. The body doesn't produce all vitamins, so they must be taken in as food.	May review nutrition, Basic 4 Food groups.

Learner Objectives	Content	Teaching Aids and Approaches
	b. Uses: Normal healthy persons receiving an adequate, well-balanced diet should not require vitamin supplements. People who for some reason, have an inadequate diet or vitamin requirements which exceed their dietary intake of vitamins can benefit from vitamin supplements.	
State situations when vitamin supplements may be used.	c. Side effects: Water soluble vitamins B and C, if taken in excess, are excreted in urine, so cause few symptoms. Fat soluble vitamins, especially A and D, if taken in excess may be stored in body fat tissue and cause overdose symptoms.	Use resource material to look up effects of overdose.
Name examples of vitamin supplements	d. Examples: 1) multiple vitamins (Stresstabs) 2) multiple vitamins (Theragran) 3) there are many other multiple vitamin preparations. Add those which are common in your area.	
State what iron is necessary for in the body	7. Minerals (Iron) a. Action and use: Necessary for normal red blood cell function and for function of all body cells. Treats iron deficiency.	Potassium is discussed in Unit II, Drugs Affecting Urinary System
	b. Side effects: G.I. irritation, tarry stools, oral liquid form may stain teeth, constipation or diarrhea.	
	c. Examples: ferrous sulfate (Feosol) iron and vitamins (Iberet) iron and vitamins (Trinsicon)	
State measures to use in administering iron to minimize side effects	d. Implications for care: May require several months of iron therapy to correct deficiency. Iron given on empty stomach will be best absorbed but most irritating to G.I. tract Give with food if G.I. upset occurs. Oral liquid form should be placed well back on tongue, or given with straw to avoid staining teeth.	

Learner Objectives	Content	Teaching Aids and Approaches
Identify action and example of calcium medication	8. Minerals (Calcium) a. Action and use: Provide calcium to prevent osteoporosis. b. Side effect: Minimal c. Example: calcium plus vitamin D and other minerals (Oscal)	

Learner Objectives	Content	Teaching Aids and Approaches
	Unit V. Drugs Affecting the Central Nervous System	Suggested classroom time: 5 hours
List parts of the central nervous system and their function	A. Structure and function of nervous system 1. Brain - control center for vital bodily functions. 2. Spinal cord - contains motor and sensory nerve pathways.	Use charts and models. May discuss changes in the nervous system which occur with aging.
Identify names and side effects of drugs stimulating the central nervous system, and implications for care.	B. Drugs which are central nervous system stimulants 1. Cerebral stimulants a. Action: speed up brain activity which in turn speeds up body activity. b. Uses: depression. c. Side effects: excitement, dizziness, dry mouth, restlessness, palpitations d. Examples: methylphenidate (Ritalin) caffeine e. Implications for care: should be given early in day so drug's stimulating effect doesn't interfere with sleep. 2. Antidepressants: a. Action: interfere in the chemical process of the brain to relieve symptoms of depression. b. Uses: depression c. Side effects: postural hypotension, mouth dryness, blurred vision, constipation, difficult urination, confusion, agitation, tremors. d. Examples: amitriptyline (Elavil) imipramine (Tofranil) e. Implications for care: provide for adequate elimination because of difficult urination and constipation, safety because of blurred vision and postural hypotension, hydration because of mouth dryness.	May discuss symptoms of depression.

Learner Objectives	Content	Teaching Aids and Approaches
List drug names, actions, and side effects, for narcotic analgesics	C. Drugs which depress the central nervous system 1. Analgesics (narcotics) a. Action: relieve pain, also used to slow persistalsis and as antitussive. b. Side effects: drowsiness, dizziness, respiratory depression, constipation (may cause paradoxical excitement in elderly). c. Examples: codeine oxycodone (ingredient of Percodan) propoxyphene (Darvon) propoxyphene napsylate (Darvon N) pentazocine (Talwin)	References for instructor about nursing management of pain to check if desired: A.J.N. January 1979, p. 74 Nursing '80. September 1980-February 1981
	d. Implications for care 1) Cause physical dependence. To be most effective should be given before pain becomes intense. Adequately relieving pain will decrease long-term need for analgesics	Discuss controlled substance administration here or with Part III, Administration of Medications.
Discuss factors in administration of analgesics which enhance their effect.	2) Provide for prevention of constipation.	
Discuss non-drug measures for relieving pain	3) Use non-drug measures to promote comfort by providing physical care: positioning, massage, environmental comfort, emotional support. Anxiety makes pain seem more acute.	Elaborate on non-drug measures to reduce pain.
Identify action, names, and side effects of non-narcotic analgesics	2. Analgesics - Antipyretics (non-narcotic) a. Action: relieve pain and reduce fever b. Side effects: aspirin - gastric upset, interferes with blood clotting. c. Examples: 1) acetylsalicylic acid (ASA) aspirin - has anti-inflammatory effects also. 2) acetaminophen (Tylenol)	

Learner Objectives	Content	Teaching Aids and Approaches
	3) buffered aspirin (Ascriptin, Bufferin) 4) zomepirac sodium (Zomax) There are many drugs available which are combinations of analgesics. Some examples are: 5) aspirin, phenacetin, caffeine (APC, Emprin Compound) 6) Darvon compound (Darvon and APC) 7) Darvocet N (acetaminophen and Darvon N) 8) Tylenol with codeine 9) Empirin with codeine d. Implications for care: 1) giving aspirin with food can reduce gastric upset. 2) See preceding implications with narcotic analgesics.	
Name action, side effects, and examples of drugs which are sedative/hypnotic	3. Sedative/hypnotics a. Action: sedatives - give calming effect hypnotics - larger doses of sedatives, cause sleep b. Side effects: usually minimal; sometimes morning "hangover", some elderly may become excited rather than sedated. Long term use may be habit forming. c. Examples: 1) barbiturates 2) nonbarbiturates - flurazepam HCl (Dalmane) chloral hydrate (Noctec) diphenhydramine (Benedryl - antihistamine used for producing sleep	

63

64

Learner Objectives	Content	Teaching Aids and Approaches
	d. Implications for care: try non-drug measures first to promote sleep, administer in a manner which won't allow person to hoard pills for overdose; don't substitute sedatives for good nursing care.	Elaborate on non-drug measures which promote sleep: snacks empty bladder, relief of discomfort
	4. Anticonvulsants a. Action: block convulsive nerve impulses b. Use: epilepsy c. Side effects: drowsiness, overgrowth of gum tissue. d. Example: phenytoin sodium (Dilantin) e. Implications for care: good oral hygiene because of gum overgrowth	Review care of person during a convulsion.
State action, side effects, examples, of drugs given to treat Parkinsonism, and implications for care	5. Antiparkinsonian Agents a. Action and use: treat Parkinson's disease by various actions. b. Side effects: numerous; dizziness, postural hypotension, drowsiness, blurred vision, intefere with voiding, dry mouth, G.I. upset. c. Examples: benztropine mesylate (Cogentin) trihexyphenidyl HCl (Artane) levodopa (Dopar, Larodopa) levodopa and carbidopa (Sinemet) d. Implications for care: 1) safety because of side effects mentioned above, 2) measures to promote voiding, 3) adequate hydration. 4) G.I. side effects lessened by giving drug with food.	May review symptoms of Parkinsonism

Learner Objectives	Content	Teaching Aids and Approaches
	6. Tranquilizers a. Action: act selectively on CNS to calm, reduce anxiety; do not depress entire CNS.	
Name action, side effects, and examples of tranquilizers	b. Uses: minor tranquilizers - primarily treat nervousness and anxiety. major tranquilizers - primarily treat mental illness but used for nervousness also.	May discuss conditions for which tranquilizers are used.
	c. Side effects: drowsiness, dizziness, blurred vision	
	d. Examples 1) minor tranquilizers diazepam (Valium) chlordiazepoxide (Librium) hydroxyzine HCl (Atarax, Vistaril) meprobamate (Equanil) 2) major tranquilizers thioridazine HCl (Mellaril) chlorpromazine (Thorazine) haloperidol (Haldol)	
Discuss implications for care for the person receiving tranquilizers	e. Implications for care: must not drink alcoholic beverages - potentiates tranquilizer action. High doses of major tranquilizers may cause Parkinson-type symptoms and abnormal movement of extremities: in and out movement of tongue, sucking and smacking lips, lateral jaw movements (occur in 50% of elderly taking this drug). Person not aware of thirst. Abrupt withdrawal may trigger seizures.	References for instructors about unwanted effects of tranquilizers to check if desired: AJN, March 1978, p. 75 Bergersen, Pharmacology in Nursing, 14th Edition, p. 295 (has excellent pictures illustrating side effects)
Name action, side effects, and examples for medication treating manic-depressive disorders, and implications for care.	D. Drugs used for treating manic-depressive disorders 1. Action: control and prevent manic episodes 2. Side effects: a. drowsiness b. symptoms of toxicity: nausea, tremor, muscle weakness	May discuss manic-depressive symptoms.

Learner Objectives	Content	Teaching Aids and Approaches
	3. Example: lithium carbonate (Lithane) 4. Implications for care: persons receiving this drug should also have adequate salt and juice intake. Unusual loss of salt or fluid from body (vomiting, diarrhea, excessive sweating) may result in toxicity.	
Explain what is meant by placebo	E. Placebos: A tablet containing sugar or no active drug ingredient The fact that placebos work is not because the pain is only imagined. Recent research indicates that placebos work probably because they enhance the effects of the body's own pain-relieving mechanisms.	Reference for instructor about placebos and body's own pain-relieving mechanisms (endorphins) to check if desired: AJN, April 1981, p. 720.
Write the action and side effects of ergot alkaloid (Hydergine)	F. Other Psychotherapeutic Agent ergot alkaloid (Hydergine) 1. Action and use: may improve symptoms of depression, confusion, unsociability and dizziness in elderly. 2. Side effect: G.I. upset 3. Implications for care: may be given orally or sublingually	

Learner Objectives	Content	Teaching Aids and Approaches
	Unit VI. Drugs Affecting the Musculoskeletal System	Suggested classroom time: 2 hours
Name parts and functions of bones, joints, muscles	A. Structure and Function of Musculoskeletal system 1. Bones a. Are living tissue; calcium in spaces between cells makes bones hard b. Bones function as framework for muscles, produce blood cells, store calcium and fat c. Cartilage - soft tissue covering parts of bones d. Bone marrow - soft, center part of bone, red blood cells manufactured here 2. Joints a. Where bones connect to each other b. Ligaments hold bones together 3. Muscles a. Skeletal muscles - work together with bones for body movement b. Tendons attach muscles to bones	Use models and charts
Name drugs, their actions, use, side effects and implications in treatment of musculoskeletal disorders	B. Drugs used to treat musculoskeletal disorders 1. Anti inflammatory a. Action and uses: Reduce pain, fever, and inflamation. Used for diseases such as osteoarthritis, rheumatoid arthritis b. Side effects: GI disturbance. May be lessened by giving medication with food c. Examples: 1) acetylsalicylic acid (aspirin) - most used, may be given in large doses - so watch for overdose symptoms 2) ibuprofen (Motrin) 3) sulindac (Clinoril) 4) naproxen (Naprosyn) 5) fenoprofen (Nalfon)	Review effects of aging on musculoskeletal system. May discuss symptoms and care of arthritis. Students may use drug reference to find overdose symptoms. Handouts may be obtained from: Kansas Chapter The Arthritis Foundation 1602 East Waterman Wichita, KS 67211

Learner Objectives	Content	Teaching Aids and Approaches
	d. Implications for care: take care in handling patients requiring these medications so as not to cause further pain in handling or positioning them	May discuss gout.
	2. Antihyperuricemics a. Action and uses: suppress formation of uric acid in gout b. Side effects: rash, GI disturbance c. Example: allopurinol (Zyloprim) d. Implications for care - should be accompanied with much fluids	
	3. Muscle relaxants a. Action and uses: CNS depressant; relieves pain and stiffness in muscles, from orthopedic disorders and injuries b. Side effects: drowsiness, lightheadedness c. Example: chlorzoxazone and acetaminophen (Parafon Forte) d. Implications for care: should not take with alcoholic beverages	

Learner Objectives	Content	Teaching Aids and Approaches
	Unit VII. Drugs Affecting the Endocrine System	Suggested classroom time: 4 hours
List action, side effects and names of drugs replacing thyroid hormones	A. Drugs used to replace thyroid hormone 1. Structure and function: Thyroid gland located in neck, controls body's metabolism rate. 2. Action and use: For persons who produce insufficient thyroid hormone. May be given for life. 3. Side effects: Symptoms of excess thyroid hormone, i.e., increase in vital signs, nervousness, weight loss. Since dosage is regulated individually, side effects are infrequent. 4. Examples: levothyroxine (Synthroid) thyroid 5. Implications for care: minimal	Use charts and models.
Describe how the body malfunctions in diabetes, and what changes occur in the urine of an untreated diabetic.	B. Drugs used for diabetes 1. Structure and function: Pancreas gland located in abdomen, produces insulin, which is necessary for body cells to be able to use or store glucose (digested sugar). 2. How the body malfunctions a. Due to lack of or insufficient production of insulin, body cells are unable to use glucose, which results in glucose being excreted in the urine. The body, starved for energy source, breaks down fats and proteins to get energy. By-products of this breakdown, ketones, are also excreted in the urine, but can accumulate in the body to such a level to cause coma. b. Growth onset diabetes - onset in people aged 20 and under, difficult to regulate, usually requires insulin replacement.	May obtain handouts from: Kansas Diabetes Association 2313 East Central Wichita, KS 67214

Learner Objectives	Content	Teaching Aids and Approaches
	c. Adult onset diabetes - onset usually after age 40, easier to regulate, may often be controlled with diet or oral hypoglycemic agents. This type of diabetes is found more frequently than growth-onset diabetes among nursing home residents.	
Identify diet, activity and medication as treatments of diabetes	3. Treatment of diabetes a. Diet Keeping body weight ideal; measured amounts of carbohydrate, protein, fat. Diet must balance the amount of insulin in the body, whether given as medication or occurring naturally; mild diabetes may be controlled by diet alone.	Discuss and/or give examples of interrelationships of insulin, diet, activity, and stress.
	b. Activity This must balance with food and insulin. Increase in activity enhances insulin's effect.	May review complications associated with diabetes as well as nursing measures to help minimize complications.
State name, action, side effects of oral hypoglycemic agents	c. Insulin or hypoglycemic agent as medication 1) Insulin can be given only by injection, so may not legally be administered by medication aide.	
	2) Oral hypoglycemic agents a) Action: this is not insulin; exact method of action unknown, but effect is to make more of body's insulin available for use.	May review testing of urine for glucose and ketones.
	b) Examples: tolbutamide (Orinase) chlorpropamide (Diabinese) tolazamide (Tolinase)	
	c) Side effects - GI disturbance	

Learner Objectives	Content	Teaching Aids and Approaches
State causes, symptoms, emergency response to hypoglycemia and diabetic acidosis	4. Implications for care a. Change from prescribed diet will upset balance of insulin and glucose. 1) Not eating (flu, diarrhea, or other reasons) may cause hypoglycemia 2) Eating excess may cause acidosis b. Hypoglycemia (insulin shock) 1) Caused by too much insulin or too little glucose in blood. 2) Symptoms: see Appendix XII 3) Treat by giving immediately some source of sugar (fruit juice, soft drink, candy) c. Diabetic acidosis and coma 1) Caused by lack of insulin 2) Symptoms: see Appendix XII	Appendix XII, Hypoglycemia and Diabetic Acidosis may be used as a handout.
State action, side effects, and names of male and female hormones used as medication	C. Sex hormones 1. Male: testosterone - produced in testes a. Action and use: 1) Replacement when there is inadequate production 2) Anabolic effect - promotes building of body tissue b. Side effects: masculinizing when given to females, edema c. Example: methandrostenolone (Dianabol) d. Implications for care: to be effective, hormones given for anabolic effect must be accompanied by improvement in nutrition. 2. Female: estrogen produced in ovaries a. Action and use: Replacement after menopause Menstrual disorders b. Side effects: nausea, abnormal vaginal bleeding	Testosterone and progesterone are given infrequently in nursing homes. Place your teaching emphasis accordingly.

Learner Objectives	Content	Teaching Aids and Approaches
	c. Examples: (Check to see what is commonly used in your area) conjugated estrogen (Premarin) diethylstilbesterol (Stilbesterol) 3. Female hormone: progesterone a. Action and use: menstrual disorders b. Side effects: minimal c. Example: medroxyprogesterone acetate (Provera) 4. Combinations of estrogen and progesterone a. Action and use: contraception for some pre-menopausal residents of nursing homes. b. Side effects: nausea, abnormal vaginal bleeding, edema, blood clots c. Example: norgestrel estradiol (LoOvral)	
List names, action, use, and side effects of adrenocortico-steroids, and implications for care.	D. Adrenocorticosteroids 1. Produced by adrenal cortex 2. Action: replacement therapy, supress inflamation 3. Use: rheumatoid arthritis allergies asthma 4. Side effects: a. short term: few b. long-term: inteferes with healing and infection resistance; weight gain, fluid retention, hypertension, "moon" face 5. Examples: prednisone (Deltasone) hydrocortisone (Cortef, Dermacort) 6. Implications for care: Withdrawing these is done gradually. Abrupt withdrawal, or omitting dose may cause severe, even life-threatening symptoms	

Learner Objectives	Content	Teaching Aids and Approaches
	Unit VIII. Antibiotics and Other Anti-infective Agents	Suggested classroom time: 3 hours
Identify cause, control measures, signs and symptoms of infection	A. The nature of infection 1. Cause: Microorganisms cause infection. Infection may be spread from one person to another in many ways, e.g., various body secretions, by touch, and by contact with contaminated equipment. 2. Control: Effective handwashing is of primary importance. Discuss other means of preventing or containing infection. 3. Signs and symptoms: May not be as prominent as with a younger person a. Localized signs and symptoms - local redness, warmth, swelling, pain, limitation of motion. b. Bodily signs and symptoms 1) First noticeable sign may be a general decline, increasing weakenss or confusion. 2) Temperature elevation 3) Chills and sweating	Review specific actions the medication aide may take to prevent transferring infection. May review institution's infection control procedures to further illustrate. Stress the role the medication aide has in observing for signs of infection.
Identify terms describing topical anti-infective action	B. Topical anti-infective agents: 1. Terms a. Antiseptic - inhibits the growth of microorganisms. Can be used on living tissue with reasonable safety. b. Disinfectant or germicide - kills microorganisms. Since this is a more potent substance, its use on living tissue is limited. Disinfectants are commonly used for objects.	Show examples, if possible.
Name topical anti-infective agents and identify actions which promote effective use	2. Examples and uses a. Povidone - iodine solution (Betadine) - combination of iodine and detergent used to reduce microorganisms grown on skin.	

Learner Objectives	Content	Teaching Aids and Approaches
	b. Alcohol - Dries skin excessively while removing microorganisms c. benzalkonium chloride (Zephiran) - antiseptic for cleansing skin or wounds. Is inactivated by soap, detergent, or wound drainage on skin. d. hydrogen peroxide (H_2O_2) - Decomposes to water and oxygen on contact with skin. Value is more in its ability to debride and remove media for bacterial growth than in direct antiseptic value. e. Include other agents commonly used in your area. 3. Implications for care Topical anti-infective agents are most effective when applied to cleansed skin or other surface.	Since new products are frequently available, check for current use.
Identify anti-infective drugs, their use, side effects and implications for care	C. Systemic anti-infective drugs 1. Use: Treat infection 2. Side effects: a. Allergic reaction is the most common adverse effect. Serious allergic reactions are most common with the penicillins. b Some cause gastric distress, resulting in nausea, vomiting and diarrhea 3. Examples: a. Sulfonamides: e.g., sulfasoxazole (Gantrisin). b. Penicillin antibiotics: e.g., penicillin V potassium (Penicillin VK, V-Cillin K); ampicillin (Omnipen, Principen).	Include drug group names as you desire. Add new antibiotics as they become approved for use.

Learner Objectives	Content	Teaching Aids and Approaches

c. Tetracycline antibiotics: e.g., tetracycline (Achromycin), doxycycline (Vibramycin) - Most members of this group should not be taken at the same time as dairy products, antacids, laxatives or iron containing medication.
d. Cephalosporin antibiotics: cephalexin (Keflex), Members of this group interfere with accurate urine testing for glucose using Clinitest, but not with "paper tape" tests such as Clinistix and TesTape.
e. erythromycin (E.E.S., E-Mycin, Erythrocin) - an antibiotic
f. nystatin (Mycostatin) - antibiotic used to treat fungus infection.

4. Implications for care
   a. Many anti-infective drugs are best absorbed when taken on an empty stomach, 1-2 hours before meals. Some antibiotics may be taken without regard to food. (Amoxicillin, penicillin V, cephalosporins and some others) Give with some food if the drug causes gastric distress.
   b. Give at regularly spaced intervals to help maintain consistent blood level of drug.
   c. Observe for signs that infection is improving.
   d. Observe for secondary infection (diarrhea, mouth infection, vaginal infection) which results when resistant microorganisms flourish.

88

87

Learner Objectives	Content	Teaching Aids and Approaches
	Unit IX. Drugs Affecting the Eye	Suggested classroom time: 1 hour
Identify basic structures and functions, terms, and abbreviations referring to the eye	A. Description of the eye 1. Structure and function Conjunctiva - mucous membrane which lines the eyelid Sclera - white of eye Cornea - clear surface of anterior eye Iris - pigmented circular muscle which adapts eye to light and gives color to eye Pupil - opening in center of iris which expands (mydriasis) or constricts (miosis) Lens - clear structure which changes shape to focus image for the eye 2. Terms used for medication administration are abbreviations for Latin words: O.D. (oculus dexter) - Right eye O.S. (oculus sinister) - Left eye O.U. (oculi unitas) - Both eyes	Use a model to show these structures if at all possible May include a review of special care needs of those with eye disorders
Identify the names, action and side effects of drugs used to treat glaucoma Identify measures which help ensure safety for the resident with glaucoma	B. Drugs used for glaucoma 1. How the eye malfunctions: Glaucoma is the result of increased pressure within the eye. Untreated glaucoma results in blindness. 2. Action: Decrease intraocular pressure 3. Side effects: a. Miosis, (Impaired vision in low light) b. Visual blurring 4. Examples: pilocarpine (Isopto Carpine) timolol (Timoptic) - newer drug which causes less miosis 5. Implications for care: a. Provide adequate lighting, especially at night. b. Pain in eye may be symptom of increasing pressure. Report promptly.	

Learner Objectives	Content	Teaching Aids and Approaches
Identify action-use and name for eye lubricant	C. Eye lubricant 1. How the eye malfunctions: Individuals may have insufficient tear production 2. Use: May be used temporarily following cataract surgery. Also used with artificial eyes and contact lenses. 3. Action: Provide tear-like lubrication 4. Side effects: Minimal 5. Example: methylcellulose (Isopto Tears), Given as eye drops 6. Implications for care: See Eye Drops and Ointment, Appendix VI.	How to administer eye medication may be taught at this time or with Part III, Administration of Medications.
Identify a reason anti-infective drugs may be used in the eye and examples of drugs used	D. Opthalmic drugs used for infection 1. Use: For various eye infections, inflamations or for preventive care following cataract surgery 2. Examples: combination of antibiotics (Neosporin Opthalmic) socium sulfacetamide (Sodium Sulamyd) 3. Implications for care: May be applied as ointment or drops; See Eye Drops and Ointment, Appendix VI.	

Learner Objectives	Content	Teaching Aids and Approaches
	Unit X. Drugs Affecting the Ear	Suggested classroom time: 1 hour
Identify parts of ear and their function	A. Structure and function of ear 1. Ear canal: leads from outside to → 2. Ear drum: vibrates, transmitting sound to → 3. Middle ear: three small bones there vibrate conducting sound to → 4. Inner ear: contains specialized hearing cells. Hearing is transmitted from these to brain via → 5. Auditory nerve: transmits sound impulses to brain 6. Eustachian tube: connects pharynx and middle ear, equalizes pressure	Use models and charts
Name action, and side effects of drugs affecting the ear and implications for care	B. Drugs used for ear disorders 1. Drugs used to relieve accumulation of ear wax (cerumen) a. Action: softens and breaks up ear wax b. Side effects: local rash c. Example: triethanolamine (Cerumenex) d. Implications for care: administered into ear canal	Review changes of hearing associated with aging, care and communication for people with impaired hearing.
	2. Antibiotics a. Action: treat infection b. Side effect: allergic reaction c. Examples: 1) Topical medication for treating outer ear infections a) chloramphenicol (Chloromycetin Otic) b) hydrocortisone, neomycin, polymixin B (Cortisporin Otic) - a combination of antiinflammatory and antibiotic medication. 2) Inner ear infections require treatment with systemic antibiotics. See Unit VIII, Antiobiotics.	See Appendix VII for administration of ear drops and ointment. May be taught with this chapter or with administration of drugs.

Learner Objectives	Content	Teaching Aids and Approaches
	Unit XI. Drugs Affecting the Skin	Suggested classroom time: 1 hour
List parts and functions of skin	A. Structure and function of skin 1. Epidermis: top layer - cells, flat, horny, constantly shed 2. Dermis: underneath layer - contains blood vessels, oil and sweat glands, hair follicles, nerves, receptors for touch sensations 3. Function of skin: protection, help regulate body temperature, manufacture vitamin D; sense temperature, pain, touch	Use models and charts
Identify actions, side effects and examples of drugs affecting the skin	B. Drugs used to treat skin disorders 1. Keratolytics a. Action: soften excess or damaged epidermis to promote shedding or easy removal, used in psoriasis, corns, fungal infections b. Side effect: irritation c. Example: salicylic acid 2. Anesthetics a. Action: relieve skin pain, temporary use only b. Side effect: rash c. Example: benzocaine (Solarcaine) 3. Anti-inflammatory Topical corticosteroids such as hydrocortisone may be used to treat skin inflammations. See Unit VII. D. Adrenocorticosteriods 4. Anti-infectives a. Kill fungus Examples: clotrimazole (Lotrimin) tolnaftate (Tinactin) b. Kill parasites (lice, scabies) Example: lindane (Kwell) c. Kill bacteria Example: neomycin, polymixin B, bacitracin (Neosporin ointment) gentamicin (Garamycin ointment)	May review changes of skin associated with aging.

Learner Objectives	Content	Teaching Aids and Approaches
	5. Agents used for debriding skin wounds a. Action: clears away necrotic tissue so growth of new healthy tissue can occur. b. Side effects: minimal c. Examples: fibrinolysin and desoxyribonuclease (Elase) trypsin (Granulex) dextranomer (Debrisan) d. Implications for care: For administration technique follow manufacturer's directions; they are different for each product.	May review prevention and treatment of decubitus ulcers.
	C. Precautions for care: Topical preparations for skin are more concentrated than preparations for mucous membranes. Do not apply skin preparations to mucous membranes because of risk of over-medicating.	

Part III Administration of Medications

Learner Objectives	Content	Teaching Aids and Approaches
	Unit I. Preparing to Administer Medications	Suggested classroom time for Part III: 6 hours
Identify ways in which medication is supplied to the nursing home	A. Understanding how medications are supplied and stored. 1. Medications may be supplied in several ways. All medication must be clearly labeled. If labels are loose or illegible, notify the pharmacist. a. Unit dose - each dose is individually packaged and labeled. Least chance for potential error. b. Multiple dose - several doses of a medication are provided for a resident in a bottle or tube which is labeled with both the medications's name and the resident's name. c. Stock supply - bottles of medication labeled only with name and dose of medication. The proper bottle and dose for each resident must be selected by the person passing medications. Greatest potential for error.	May visit a nursing home to view the medication area first hand. A simulation may be adequate, but there is nothing so vivid as the "real thing".
Identify ways in which medications may be stored	2. Medications may be stored in several ways. a. Medication cart - frequently used for unit dose storage in trays or drawers. Doors or drawers must be kept locked when the person responsible for medications is not with the cart. b. Medicine room - used for storing stock drugs and supplies. This room is also open only to authorized personnel. Often contains refrigerator for drugs which must be kept cold. c. Locked box or drawer for controlled substances may be found in either the cart or medicine room.	Show illustrations or visit a nursing home.

Learner Objectives	Content	Teaching Aids and Approaches
Use order verification system to check medication orders	B. Checking the medication order 1. Medication order sheet for the resident contains physician's order for each drug the resident is to receive. 2. A more accessible system of checking current orders is usually used, such as kardex, medication cards, medex or drug profile sheet. 3. Medication errors are prevented by using the system accurately and consistently.	Show more than one system of medication orders, cards and recording, if possible. Illustrate how these forms are properly filled out and used. Show how to verify current orders as a part of the routine of setting up medications.
	C. Setting up medications, general guidelines 1. The medication aide must know the expected effect of each medication before giving it.	
Identify and demonstrate ways to prevent transfer of infection	2. The medication aide should prevent transfer of infection. a. Handwashing between contacts with residents. b. Handling medications with fingers as little as possible. c. Cleaning medication tray following use. d. Keeping medication tray in clean area while passing medication.	Review additional techniques to prevent transfer of infection, stressing the value of conscientious handwashing. Include handwashing in practice session.
Identify and demonstrate ways to set up medications accurately Identify potential sources of error, and safety checks which help prevent error	3. The environment should promote safety. a. Well-lighted - so that labels may be accurately read. b. Free of distractions and interruptions - the medication aide must concentrate on accuracy. c. Kept neat, orderly and clean.	
	4. Safety checks help prevent errors a. Read label three times 1) When taking from shelf or tray 2) When pouring medication or removing from unit dose container 3) When returning container to shelf	Give examples of errors which can occur when safety checks are not followed.

Learner Objectives	Content	Teaching Aids and Approaches
	b. Follow the "Five Rights" 1) The right medication 2) The right dose 3) The right time 4) The right route 5) The right resident c. Should not give medications poured by someone else. (Unit dose is adequately labeled, an exception to this precaution.) d. If medication has fallen from its bottle or is found on shelf or floor, discard medication immediately in the presence of one witness. e. Never leave the medication tray unattended	
Identify and demonstrate specific techniques up medications accurately Identify potential sources of error	D. Setting up medications, specific techniques 1. Liquid medication a. Pour on side away from label. b. View medication cup at eye level. c. Read level of medication from bottom of meniscus or curve of liquid surface.	Practice specific techniques.
	2. Crushing medication a. Make sure that the medication may be safely crushed, i.e., not enteric coated, sustained-release or similar form. b. Use mortar and pestle or medication crusher. Make sure that equipment is free of residue from crushed medication. c. Mix with food appropriate for resident's diet just before administering.	Borrow crusher, if possible to illustrate how to use and keep clean.
Identify drugs which may require special controls and record-keeping. Name controls which may be used	3. Controlled drugs a. Narcotic, stimulant and depressant drugs may require special record-keeping. b. The medication aide must record the use of the controlled drug in the "Narcotic or Controlled Substances" book before giving it.	Show examples of forms which may be used for signing out controlled drugs and for change of shift counting.

Learner Objectives	Content	Teaching Aids and Approaches
	c. Controlled drugs are usually counted at change of shift to verify the accuracy of record-keeping.	

Learner Objectives	Content	Teaching Aids and Approaches
	Unit II. Methods of Medication Administration	
Identify and demonstrate ways to administer drugs safely and effectively by the following routes: Oral Respiratory Oxygen Inhaler Nebulizer Rectal Vaginal Eye Ear Skin	A. Identification of the resident is essential before administering any medication.	Review techniques to correctly identify resident.
	B. Oral medication - See Appendix IX for content information. Review medications which require checking pulse before administering.	May use appendices as handouts, if you desire. Practice administering oral medicines in lab. Small candies make satisfactory "medication." Use cards, trays, unit dose packages and cups as found in the work setting.
	C. Respiratory administration. a. Oxygen - See Appendix I b. Inhaler therapy - See Appendix II c. Nebulizer therapy - See Appendix III	May cover this content with respiratory drug unit or medication administration unit. Borrow equipment to demonstrate use, invite a respiratory therapist to assist you, or visit a respiratory therapy department.
	D. Rectal suppository - See Appendix IV	Demonstrate. Allow student practice.
	E. Vaginal suppository and cream - See Appendix V	Demonstrate. Allow student practice.
	F. Eye drops and ointment - See Appendix VI	May cover this content with eye medication unit or medication administration unit.
	G. Ear drops and ointment - See Appendix VII	May cover this content with ear medication unit or medication administration unit. Demonstrate. Allow student practice
	H. Skin ointment and lotion - See Appendix VIII	Remember to include nitroglycerine ointment as well as other topical agents. Demonstrate. Allow student practice.

107

108

Learner Objectives	Content	Teaching Aids and Approaches
	Unit III. Recording Medication Administration	
Identify general guidelines to follow in recording medication administration	A. General guidelines 1. Chart after giving. 2. Write clearly using ink. 3. Initial or sign all charting according to institution policy.	Include study of the entire chart if you feel it is appropriate. Provide practice problems to illustrate how to chart specific situations. Use actual chart materials, if possible.
Identify appropriate recording procedures when medication is given at times other than regularly scheduled or when errors are made	B. Specific situations. 1. Medication not given at scheduled time (also if refused or held) a. Usually charted by circling the scheduled time on medication record and initialling it. b. Complete by recording in nurses notes reason drug was not given. 2. P.R.N. and stat medication a. Chart on medication record, according to institutional procedure. b. Record administration in nurse's notes along with observations of pertinent resident behavior. c. Institutions may also report p.r.n. and stat medication use during change of shift report. 3. Medication errors a. Reporting error to supervisor is vital so that necessary remedial measures may be started. b. Complete Medication Error form, following institutional policy and procedure.	Reinforce the value of reporting errors. Give examples of how this is beneficial. Use forms from more than one institution, if possible. Show how to complete form.

Part IV Practicum: Clinical Experience and Evaluation

Suggested time allotted:

A minimum of fifteen hours is required for clinical experience and evaluation. This will follow satisfactory completion of the classroom portion of the curriculum. The student needs adequate supervised clinical practice before being evaluated. At the instructor's discretion, students may be scheduled for a greater amount of clinical experience according to individual needs.

Methods of clinical supervision and evaluation:

Clinical supervision and evaluation can be accomplished in one of two ways:

1. Students are supervised for clinical experience by a licensed nurse on the staff of the nursing home where they are employed. Following this period of orientation, their clinical performance is evaluated in this setting by the instructor.

2. Students are supervised and evaluated in a clinical setting by the classroom instructor. Clinical practice may be in a nursing home other than where the student is employed.

The instructor has the ultimate responsibility for clinical supervision of the student. When the instructor is not present with the student in the clinical setting, she/he assigns her/his role to a licensed nurse staff member of the nursing home. The instructor shall provide this staff nurse with information concerning skills which have been taught and objectives for clinical performance.

When the student is being supervised in the clinical area, special arrangements may have to be made so that there are no more than 3 to 5 students to supervise at one time.

Suggestions for clinical practice:

The student must have practice in administering a variety of types of medicines. This includes the following, as available:

1. Cardiac medication which requires the student to count the pulse prior to administration
2. Liquid medication
3. Enteric-coated tablet
4. PRN medication
5. Eye medication
6. Inhalers or nebulizers

7. Ear medication
8. Vaginal medication
9. Rectal suppositories
10. Topical medication

Suggestions for Evaluation:

It is suggested that the evaluation be pass-fail. Although there are many factors to be evaluated, the final consideration is that the student is or is not administering medications safely.

The following page is a sample evaluation form. The instructor may use any instrument which includes these criteria for evaluation.

Medication Aide Clinical Evaluation

(This form is only suggested. The instructor may use any evaluation instrument which includes these criteria.)

Student's Name _____

	Satisfactory	Unsatisfactory
1. Demonstrates knowledge of medications:		
Able to state action, side effects and implications for resident care for assigned medication	☐	☐
2. Prevents transfer of infection:		
Washes hands before beginning to work with medications and when necessary between residents	☐	☐
Maintains clean work area	☐	☐
Maintains cleanliness of medication	☐	☐
3. Prepares medication accurately:		
Compares medication card with order (kardex, medex)	☐	☐
Checks drug name from label (bottle or unit dose) with card	☐	☐
Pours accurate amounts of liquid and solid medication	☐	☐
Places medications in front of proper medication card	☐	☐
4. Administers medication accurately and effectively:		
Identifies resident by name, by wristband or by third person	☐	☐
Observes situations which may require checking with supervisor before medication is given, i.e., signs of unwanted reactions to drugs. Seeks guidance from supervisor	☐	☐
Administers the following types of medication effectively:		
Oral	☐	☐
Rectal suppository	☐	☐
Eye drops or ointment	☐	☐
Inhaler or nebulizer therapy, if available	☐	☐
Vaginal medication, if available	☐	☐
Ear medication, if available	☐	☐
Topical medication, if available	☐	☐
Observes resident to see that medication is taken and retained, i.e., swallowed, not under tongue, not squeezed out of eye, not expelled from rectum	☐	☐
5. Provides for the safety of medication:		
Keeps medications on cart or medication tray under control at all times, i.e., does not leave one medication at bedside or a tray or roomful of medication unattended	☐	☐

115

116

	Satisfactory	Unsatisfactory
6. Records medications and observations appropriately, using medication cards and notes----------	[ ]	[ ]

Comments:

I certify that I have evaluated the performance of above-named student and have found her/his performance to be safe and competent in administering medications.

Instructor/Evaluator _____

I have evaluated the performance of the above-named student and have found her/his performance to be unsafe in administering medication.

Instructor/Evaluator _____

Student's signature _____

Date _____

SUGGESTIONS FOR REFERENCE

The following are some student and teacher references as well as student texts which have been suggested by some medication aide instructors. This is not intended to be a complete listing. To look further for available reference material and text books, the instructor could check with book publishers or a textbook supply company. The names and addresses for publishers and supply companies which handle medical books could be obtained from a nursing education program and/or the educational institution through which this course is offered.

Teacher Textbook References:

Bergersen, Betty S. and Goth, Andres. Pharmacology in Nursing, 1979.

The C. V. Mosby Company
11830 Westline Industrial Drive
St. Louis, MO 63142

Hardcover, 779 pages, intended for nurses, covers broad scope of medications in depth, some math included.

Rodman, Morton J. and Smith, Dorothy W. Clinical Pharmacology in Nursing, 1974.

J. P. Lippincott Company
301 S. Benton St.
Edwardsville, IL 62025

Hardcover, 701 pages, broad coverage of medications, organized according to disorders and drugs affecting them.

Rodman, Morton J. and Smith, Dorothy W. Pharmacology and Drug Therapy in Nursing, Second Edition, 1979.

J. P. Lippincott Company
301 S. Benton St.
Edwardsville, IL 62025

Hard cover, 1085 pages, intended for nurses, covers broad scope of medications in depth, no mathematics.

Student Textbooks:

Asperheim, Mary Kaye. Pharmacology, An Introductory Text, 1981.

W. B. Saunders Co.
West Washington Square
Philadelphia, PA 19105

Paperback, 237 pages, intended for practical nurse and other students, contains mathematics and practice problems as well as medication information.

Bayt, Phyllis Theiss. Administering Medications. A Competency-Based Program for Health Occupations, 1982.

The Bobbs-Merrill Company
4300 West 62nd Street
Indianapolis, IN 40268

Paperback, 384 pages, intended for people who administer medication under supervision, includes mathematics, and special considerations in administering drugs to the elderly.

Skelly, Esther G. Medications and Mathematics. 1982.

Delmar Publishers
Mountainview Avenue
Albany, NY

Paperback, 256 pages, intended for practical nurses, medications plus mathematics.

Squire, Jessie E. and Clayton, Bruce D. Basic Pharmacology for Nurses, 1981.

The C. V. Mosby Company
11830 Westline Industrial Drive
St. Louis, MO 63142

Paperback, 296 pages, intended for practical/vocational and other nursing students, general coverage of medications plus mathematics.

Drug Reference Books:

Facts and Comparisons

Facts and Comparisons, Inc.
111 West Port Plaza, Suite 423
St. Louis, MO 63141

Looseleaf binder. Monthly supplements with drug updates allow book to constantly change and keep current. Comprehensive--covers all available U.S. drugs, used by pharmacists. Expensive.

Govoni, Laura E. and Hayes, Janice E. Drugs and Nursing Implications, 1978.

Appleton-Century-Crofts
292 Madison Avenue
New York, NY 10017

Paperback, 819 pages, intended for nurses, drugs arranged alphabetically by generic name, includes nursing implications for each drug.

Loebl, Suzanne and Spratto, George. The Nurse's Drug Handbook, Second Edition, 1980.

John Wiley and Sons
605 Third Avenue
New York, NY 10016

Paperback, 869 pages, intended for nurses, contains specific information on administering drugs to geriatric patients, section on pharmacology in general, drugs arranged by action group, indexed by generic and brand names.

Nursing 81 Drug Handbook

Intermed Communications Book Division
132 Welsh Road
Horsham, PA 19044

Hardcover, 766 pages, drugs grouped according to action, indexed by generic and brand name.

Ryan, Sheila A. and Clayton, Bruce D. Handbook of Practical Pharmacy, 1980.

The C. B. Mosby Company
11830 Westline Industrial Drive
St. Louis, MO 63142

Paperback, 350 pages, clinically oriented reference for health care students and professionals, drugs grouped by action, indexed by generic and brand names.

United States Pharmacopeial Convention. The Physicians' and Pharmacists' Guide to your Medicines, 1981.

Ballantine Books
U.S.P. Drug Information Division
12601 Twinbrook Parkway
Rockville, MD 20852

Paperback, 521 pages, intended for general public, patient-oriented information on over 4,000 drugs organized by generic and brand name.

Oxygen Administration

Purpose: To help the resident breathe more easily by increasing the oxygen (O_2) he is receiving.

Materials:
1. Oxygen tank on carrier
2. Gauge or regulator
3. Humidifying bottle with sterile distilled water
4. Mask or cannula
5. Connecting tubing

Procedure:

1. To prepare the tank:
   Before the regulator is attached to a new tank, "crack" the tank. That is, open the valve and close quickly to blow out any dust or foreign matter which might be forced into the regulator. Since this is noisy, crack the tank near the storage area rather than in the resident's room.

2. To attach the regulator to tank:
   a. Hold regulator assembly upright when attaching
   b. Fill humidifying bottle with sterile distilled water to indicated level.

3. To start oxygen:
   a. Leave oxygen tank securely fastened to cart and place in upright position while oxygen is administered.
   b. With liter flow valve turned off, open tank valve completely. Then turn liter flow valve slowly until the steel ball, or liter flow needle, rises on the liter gauge to the liter number ordered by the doctor.

4. To use mask or cannula:
   a. Connect plastic mask or cannula to the oxygen connecting tube and regulator.
   b. Place mask or cannula on resident with oxygen flowing. Mask should cover the nose and mouth.
   c. Persons with chronic respiratory disorders should receive oxygen at no more than 2L/minute. A cannula is usually used.
   d. When using a mask, oxygen should be delivered at 5-6L/minute to assure CO_2 washout from mask.

5. To maintain oxygen therapy:
   a. Distilled water should be kept at indicated level. If oxygen is not moistened, it is very damaging to the respiratory tract.
   b. Do not allow water to flow into liter valve to prevent damage.
   c. A shrill whistling is caused by a kink in the tubing.
   d. Mask or cannula, tubing and humidifying jar should be changed every 72 hours.
   e. Give special care to skin under mask or cannula. Give mouth care regularly. Lubricate lips with water soluble moisturizer.

6. To discontinue oxygen:
   a. Remove mask or cannula.
   b. Turn off oxygen tank, then liter valve.
   c. Record according to procedure.

Dangers: Oxygen supports combustion

1. No smoking is allowed in room. Post signs where they may be easily seen.
2. All electrical equipment should be properly grounded.
3. Remove sources of static electricity.
4. Do not use oil based lubricants or solutions containing alcohol near oxygen administration.

Inhaler Therapy

Purpose: To administer medication into the respiratory tract.

Materials: Medication in inhaler.

Procedure:

1. Wash hands before and after inhaler use.
2. Confirm medication order.
3. Identify resident.
4. Assist the resident to upright position. Unless lungs can expand fully, the medication will not reach deeply into lung tissue.
5. Shake medication, as directed on inhaler container.
6. Instruct resident to breathe out fully. Place mouthpiece of inhaler well into mouth. Resident should hold lips loosely around the mouthpiece. As resident begins to inhale around mouthpiece, he should activate the inhaler, continuing to inhale as deeply and for as long as he can. He should hold his breath for as long as comfortable to allow absorption of the medication.
7. Repeat at one minute intervals, if physician orders more than one inhalation.
8. Clean inhaler after use or at least once a day if resident keeps it in his room.
9. Record according to procedure.

Remarks: Residents may become very dependent on the use of their inhalers. Excessive use of bronchiodilator inhalers results in the loss of effectiveness or even a <u>decrease</u> in the opening size of bronchioles.

Nebulizer Therapy

Purpose: To administer medication into the respiratory tract.

Materials:
1. Hand-held nebulizer, such as Maximist or Pulmonaide
2. Medication and diluent.

Procedure:
1. Wash hands before and after treatment.
2. Confirm medication order.
3. Mix medication and diluent as ordered.
4. Identify resident.
5. Assist the resident to upright position. Unless lungs can expand fully, the medication will not reach deeply into lung tissue.
6. Instruct resident to breathe in deeply through mouth, inhaling mist from nebulizer.
7. After completing the treatment, clean and dry equipment.
8. Record according to procedure.

Remarks:
1. Bronchiodilator medication is frequently given by this route. Respirations should improve. Tachycardia is a side effect.
2. Hyperventilation may occur during therapy. Encourage resident to breathe deeply but slowly.

Rectal Suppository

Purpose: To administer medication into the rectum.
Rectal medications may be given to: Lower temperature, control nausea, stimulate bowel movement, soothe local lesions.

Materials:
1. Medication
2. Glove or finger cover
3. Lubricant (water soluble)

Procedure:
1. Wash hands before and after administering.
2. Confirm order.
3. Identify resident.
4. Explain procedure and expected result of suppository.
5. Position resident comfortably on side with as little exposure as possible.
6. Remove wrapper from medication, put on glove and lubricate suppository as directed by instructions on medical literature or card.
7. Gently insert pointed end of suppository the length of the index finger into the rectum. Having the resident breathe through his mouth will help relax the anal sphincter. Make sure the suppository is pressed against the wall of the rectum and not lodged in feces.
8. If the resident is weak or debilitated, one may need to compress the buttocks together for several minutes to keep the medication from being expelled.
9. Resident should avoid having a bowel movement for 20 minutes so that medication can be absorbed through rectal wall.
10. Record according to procedure.

Vaginal Suppository and Cream

Purpose: To administer medication into the vagina. Medications administered by this route may be for treating vaginal irritations and infections.

Materials:
1. Medication
2. Gloves
3. Applicator for cream
4. Tissues and sanitary napkins if needed

Procedure:
1. Wash hands before and after administering.
2. Confirm medication order.
3. Identify resident and explain procedure.
4. Have resident void.
5. Position resident comfortably on back with knees bent and legs apart. Drape resident so there is as little exposure as possible.
6. Put on gloves and prepare medication for insertion.
7. Insert medication
   by hand: gently, about 2-3 inches along back of vagina.
   by applicator: gently insert applicator 2-3 inches into vagina, push plunger, releasing medication along back wall of vagina.
8. Wipe vaginal opening if necessary. Provide sanitary pads as necessary to prevent staining underclothing. Medication will be less likely to leak out before being absorbed if resident avoids upright position for about 20 minutes.
9. Clean applicator
10. Record according to procedure.

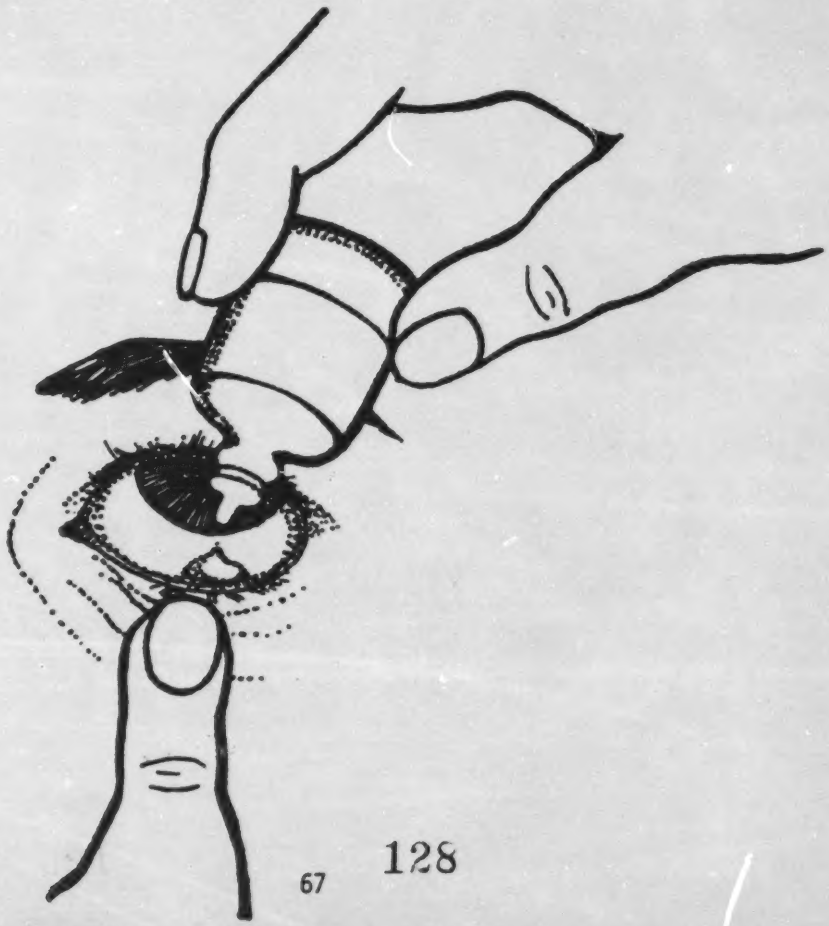
Eye Drops and Ointment

Purpose: To provide medication to treat eye disorders.

Materials: Liquid or ointment medication
Cleansing tissue

Procedure:

1. Wash hands before and after treatment.
2. Confirm medication order.
3. Identify resident.
4. Clean around eyes with a fresh washcloth if there are crusts. Use separate areas of the cloth for each eye to prevent transfer of infection.
5. Ask resident to look upward or tilt head back.
6. Pull down lower lid to instill drop inside lower lid. Apply ointment in a thin "string" just inside lower lid. Steady hand by resting it against the resident's face. Do not touch dropper or ointment tube to lashes or eye.
7. Have the resident close eyes gently and apply light finger pressure over the lacrimal sac for one minute. This allows the medication to be absorbed into the eye circulation rather than draining into the nasopharnyx.
8. Ointment may temporarily cause blurred vision. Provide precautions for resident activity.
9. Record according to procedure.

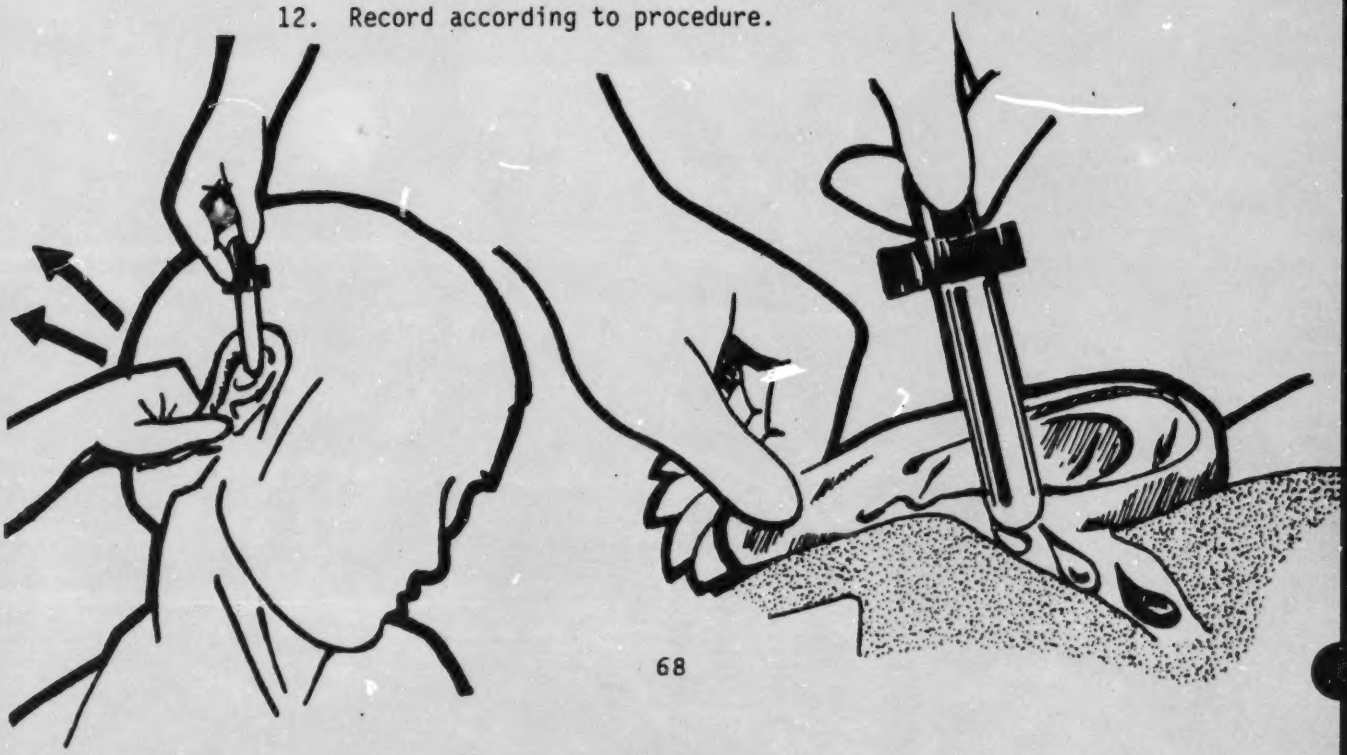


Ear Drops and Ointment

Purpose: To provide medication to treat ear disorders.

Materials:
1. Medication
2. Medicine dropper
3. Cotton ball

Procedure:
1. Wash hands before and after administering.
2. Confirm medication order.
3. Identify resident.
4. If medicine is not at body temperature as it comes from bottle, it may be warmed by holding it in the hands for a few minutes. Avoid heating above body temperature to prevent loss of potency.
5. Explain procedure and position resident lying down with head turned to side.
6. Clean and dry ear canal if necessary with cotton balls or wash cloth.
7. Gently pull ear to straighten canal - upward and backward.
8. Instill medication into ear without touching dropper to ear canal. Steady hand by resting it against resident's head.
9. Wipe up any spills around ear.
10. Have resident remain in the side lying position for several minutes so that medication can be absorbed.
11. May put cotton ball at ear canal opening to prevent excess medication from leaking onto clothing.
12. Record according to procedure.



Skin Ointment and Lotion

Purpose: To provide medication to treat skin disorders.

Materials:
1. Liquid or ointment medication
2. Gauze square or non-sterile examining glove
3. Occlusive dressing, if needed

Procedure:
1. Wash hands before and after administering.
2. Confirm medication order.
3. Identify resident.
4. Prepare skin area to be treated. Usually the previous medication should be washed away, the skin rinsed and patted dry. Consult your supervisor to see if this should not be done.
5. Apply a thin coat of medication. Use gauze squares or similar material to apply liquid. Ointment may be applied with a gauze square or examining glove. Protect your skin from contact with the medication. (Follow manufacturer's application instructions for nitroglycerin ointment.)
6. An occlusive dressing may be ordered by the physician for specific medications to enhance their absorption. Cover the medicated area with plastic wrap and secure with tape. Remove plastic wrap after the prescribed time.
7. Record according to procedure.

Giving Drugs to the Aged Person

Make sure you have the right resident before giving any drug. Because of confusion or difficulty in hearing, a resident may answer "yes" to any yes or no question put to him, such as, "Are you Mr. Green?" To avoid this, phrase your question in such a manner that it requires him to state his name, i.e., "What is your name?" Do not rely on clothing labels or a name over the bed to identify a resident. A confused patient may be in someone else's bed or wearing someone else's clothes. If you cannot positively identify a resident, get assistance from some staff person who can.

Explain to the resident the method of administration and effect of the medication. In speaking to residents with hearing and vision problems, speak slowly, clearly and in a low-pitched tone. Stand in front of the resident so he can see your lips. If necessary write things down using large letters.

When giving medications, make sure the resident is in sitting position. If bedfast, the head of the bed should be raised. It is much easier to swallow medication when in sitting position. Place a cloth or paper napkin under the resident's chin. If several tablets and capsules must be taken, offer him one at a time. You may have to place them in the mouth, well back on the tongue. Give sips of water before and after each medication. Water before may moisten mouth and throat, making it easier for the medicine to be swallowed. Allow the resident to rest a minute or two after each tablet. This quiets the cough reflex and enables the resident to take all the medicines. Patience and allowing sufficient time for the resident to take the medicine and water are the keynotes to success.

Give the most important medicines first, in case the resident is unable to swallow all the medicines. For instance, a heart medicine might be more important than an aspirin tablet. If in doubt concerning this, ask the supervisor, pharmacist or doctor. Any medicines in tablet form to be given under the tongue (sublingual) should be given last.

Ask the resident if each tablet is down. If he is unable to speak, he might nod or shake his head. If the tablet is not yet swallowed, give more water. The lower jaw may be pulled gently down to open the mouth to see if the tablet is down. Another way to aid swallowing is to place a tablet or capsule whole in a teaspoon of jelly, if jelly is permitted.

Many aged persons have a great deal of difficulty in swallowing drugs, especially tablets and capsules of large size. Following a stroke, residents with paralysis of the swallowing muscles present a definite problem in swallowing medications. The administration of tablets, capsules, and water causes much coughing. These patients must be watched closely for signs that the medication may have entered the trachea or bronchial tubes. Constant coughing and bluish or purplish discoloration of the face may indicate this. This is an emergency to report to the supervisor at once.

If the resident cannot swallow a whole tablet, it may be crushed to a powder, placed well back on the tongue and followed immediately with water, or the crushed tablet may be mixed with a teaspoon of applesauce or jelly. Powders in a capsule may be removed by separating the two halves and administering the contents like a crushed tablet. One should consult the supervisor or pharmacist to make sure this will not adversely affect the medication. Enteric coated and timed-release medications should not be crushed.

If the resident has trouble swallowing oral medicines in any form, consult the supervisor or doctor. Many medicines in tablet or capsule form are also available in liquid form. The doctor may change the prescription to a more appropriate form. If liquid medication is prescribed, give it slowly and follow with sips of water.

Wait to see that all medications are swallowed. Never leave medicine at the bedside or with the resident. This may result in a resident who is confused taking the wrong medication, or a weak or forgetful resident being unable to or forgetting to swallow the medication. Never leave the medication room or medication cart unlocked while unattended.

Medications may be given to residents in the dining room at mealtime. Advantages of doing this are that the resident is in an upright position, liquids are already present, and many residents are in one place. Disadvantages of doing this are difficulty in identifying residents and possible drug-food interactions.

Common Medical Abbreviations

Abbreviation	Meaning
a.a.	of each
* a.c. (ante cibum)	before meals
A.S.A.	aspirin
* ad.lib.	as desired
amp.	ampule
* A.M.	morning
ax	axillary
* b.i.d.	twice daily
B.P.	blood pressure
c	with
cap	capsule
c/o	complains of
D.C. or dc	discontinue
elix.	elixir
et.	and
G.I.	gastrointestinal
* h or hr	hour
H_2O	water
H_2O_2	hydrogen peroxide
* hs or H.S.	hour of sleep
I and O	intake and output
K	potassium
lt or L	left
M.O.M.	milk of magnesia
* noc.	night
NPO	nothing by mouth

*abbreviations relating to time

Abbreviation	Meaning
n.s.	normal saline
O	orally
O_2	oxygen
OD (oculus dexter)	right eye
OS (oculus sinister)	left eye
OU (oculi unitas)	both eyes
* p.c. (post cibum)	after meals
per	through or by
p.o. (per os)	by mouth
* P.M.	afternoon
* p.r.n.	as necessary
* q	every
* qd	every day
* qh	every hour
* qod	every other day
* qid	four times daily
* q2h	every 2 hours
* q4h	every 4 hours
q.s.	quantity sufficient
R.	rectal
rt. R	right
Rx (take thou)	prescription
s	without
s.o.b.	short of breath
S.S.	soap suds
* stat	immediately
sub.ling.	under the tongue

Abbreviation	Meaning
tab.	tablet
* t.i.d.	three times a day
tr.	tincture
T.P.R.	temperature, pulse, respiration
V.O.	verbal order
wt.	weight
x	times

Units of Measurement and their Abbreviations
(arranged in order of increasing size)

Apothecaries

Weight (dry)	Volume (liquid)
grain (gr)	minim (m, mx)
dram (dr, ʒ)	fluidram (fl.dr. or fʒ)
ounce (oz, ℥)	fluidounce (fl.oz. or f℥)
pound (lb.)	pint (pt.)
	quart (qt.)

Household

Weight (dry)	Volume (liquid)
ounce (oz.)	drop (gt) drops (gtt)
pound (lb.)	teaspoon (t or tsp.)
	tablespoon (T or Tbsp.)
	cup (c.)
	pint (pt.)
	quart (qt.)
	gallon (gal.)

Metric

Weight (dry)	Volume (liquid)
microgram (μg, mcg.)	milliliter (ml.)
milligram (mg.)	cubic centimeter (cc.)
gram (g, Gm)	liter (l.)
kilogram (kg.)	

Facts About Diabetic Acidosis and Hypoglycemia

	Diabetic Acidosis	Hypoglycemia (Insulin Shock)
Cause	Excess of food or lack of insulin	Excess insulin or lack of food
Onset	Days or gradual	Sudden
Skin	Dry - flushed	Pale - moist
Mouth	Dry	Drooling
Thirst	Intense (water to flush out sugar)	Absent
Hunger	Absent (just doesn't need food)	Intense (starving)
Vomiting	Relatively common	Rare
Abdominal Pain	Frequent	Absent
Respiration	Exaggerated (air hunger)	Normal or even shallow
Blood Pressure	Low	Normal
Pulse	Weak - rapid	Full
Eye Ball	Soft (actually)	Normal
Vision	Quite dim	Double vision (diplopia)
Tremors	Absent	Frequent
Convulsions	None	Do have in late stages
Lab: Urine Sugar Level	High	Absent by 2nd spec.
Diacetic Acid	High	Absent
Blood Sugar	High	Below 60 mg. per 100 cc
Improvement	Comes out gradual 6-12 hours back to normal Gradual following insulin	Very rapid following carbohydrates - 5 min after eating candy bar
Breath	Fruity or sweet	No odor
Clinitest	1/10 % - 2 %	Negative
Acetone	Trace to strong positive	Negative